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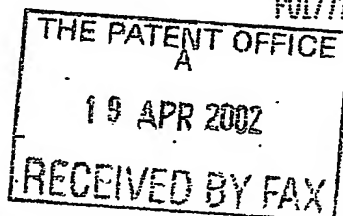


Signed *Andrew Gersey*
Dated 15 May 2003

Patents Form 1/77

Patents Act 1977
(Rule 16)The
Patent
Office19APR02 E712456-1 C20995
F01/7700 0.00-0208977.9

Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

Cardiff Road
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1. Your reference

STEADYCAM/POST

2. Patent application number

(The Patent Office will fill in this part)

0208977.9

19 APR 2002

3. Full name, address and postcode of the or of each applicant *(underline all surnames)*Howard JAMES SMITH
Unit 2B, Whitehall Street,
Stockport,
Cheshire,
SK5 7LWPatents ADP number *(if you know it)*

If the applicant is a corporate body, give the country/state of its incorporation

8365769001

4. Title of the invention

ARTICLE MOUNTING

5. Name of your agent *(if you have one)*"Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*Patrick Russell-Rayner,
Business Centre West,
Avenue One,
Business Park,
Letchworth Garden City,
Hertfordshire
SG6 2NBPatents ADP number *(if you know it)*

7485984001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and *(if you know it)* the or each application number

Country

Priority application number
*(if you know it)*Date of filing
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing
*(day / month / year)*8. Is a statement of inventorship and of right to grant of a patent required in support of this request? *(Answer 'Yes' if)*

NO

- a) any applicant named in part 3 is not an inventor, or
b) there is an inventor who is not named as an applicant, or

c) any named applicant is a corporate body.
See note (a))

Patents Form 1/77

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Continuation sheets of this form	NONE
Description	SIX
Claim(s)	NONE
Abstract	NONE
Drawing(s)	ONE

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Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination (Patents Form 10/77)

Any other documents
(please specify)

11.

I/We request the grant of a patent on the basis of this application

Signature

Date 19/4/02

12. Name and daytime telephone number of person to contact in the United Kingdom

Pat Russell-Rayner 01462 672538

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ARTICLE MOUNTING

This invention relates to the mounting of articles in such manner the article is selectively rotatable about an axis.

In particular but not exclusively the present invention is concerned with the mounting of a camera in such manner that the camera can be displaced about at least one axis transverse to the optical axis of the lens of the camera.

The present specification will discuss the features of the invention and its mode of use in relation to the positioning of a camera. It will be understood that the apparatus and features of the invention can be used in other applications in which it is desired to be able to displace an article in a similar manner.

It is well known to be able to mount cameras so that the camera can be rotated about an axis perpendicular to the optical axis of a lens associated with the camera and/or a second axis in which the lens axis is tiltable up or down thereby to provide two degrees of rotational movement to the camera.

It is an object of the present invention to provide a mounting system for a camera that allows the camera to be mounted to a support in such manner that the camera can be selectively displaceable relative to the support about at least one axis additional to the aforesaid two degrees of rotational movement.

Broadly according to the first aspect of the invention there is provided an arrangement for mounting an article in such manner that the article can be suspended below its centre of gravity whilst enabling the article to be selectively rotatable/pivotable about a horizontal axis.

Broadly according to a further aspect of the invention there is provided an arrangement for mounting a camera in such manner that the camera can be suspended below its centre of gravity whilst enabling the camera to be selectively rotatable/pivotable about a horizontal axis.

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Preferably, the article/apparatus/camera is eccentrically mounted within a support unit in such manner that relative rotational/rolling displacement is possible between the support and the article/apparatus/camera about a predetermined axis or direction in such manner that in the event of rotation of the support about said axis the article/apparatus/camera effectively remains in its initial position.

Conveniently said support unit includes a cylindrical framework providing cylindrical guide tracks for rotatably mounting a support frame for the eccentric mounting of the article/apparatus/camera.

For a better understanding of the invention and to show how to carry the same into effect reference will now be made to the accompanying drawings in which:-

Figure 1 is a side view of a cage assembly for supporting a camera in accordance with the invention; and

Figure 2 is a front view of a camera when mounted in the cage assembly.

The cage assembly 1 shown in Figures 1 and 2 includes first and second circular frame members 1 maintained in parallel spaced apart relationship by spacer bars 3. The bars 3 are located externally of the circular form of the frame members 1 and 2 in mounting lugs 4. In practice, there are six such lugs 4 equiangularly spaced around the circumference of the frame members 1 and 2.

The inner periphery of each frame member provides a smooth cylindrical track 5 for receiving and locating rolls 6 provided upon a circular inner article/apparatus/camera unit mounting frame 7 and a toothed circumscribing track 8 that is intended to be operationally engaged by a pinion 9 associated with the mounting frame 7.

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As may be seen from Figure 2 camera unit 10 to be carried by the mounting frame is mounted to the frame in such manner that the centre of gravity of the camera is, i.e., in the position shown in the Figure 2, located below the axis of rotation of the camera frame within the cage assembly. The camera unit can be considered as comprising the actual camera, with any monitors associated with the camera, batteries and other apparatus conventionally regarded as forming a camera unit being located elsewhere. Alternatively the components mounted to the support frame 7 could include additional to the camera itself any other components conventionally associated with the camera. Thus, for example, the monitor could be supported from the frame assembly 7 whereby the monitor remains in conventional operational position irrespective of the setting of the cage assembly 1.

As will be seen the article/apparatus/camera unit 10 is thus eccentrically mounted within the cage assembly 1 in such manner that relative rotational/rolling displacement is possible between the cage assembly 1 and the article/apparatus/camera unit 10 about a predetermined axis or direction (in the case of a camera unit with the optical axis of the camera unit lens) in such manner that in the event of rotation of the cage assembly 1 about said axis the article/apparatus/camera unit 10 effectively remains in its initial position.

This arrangement has the practical consequence that whenever the cage assembly 1 is rotated about its axis of symmetry the camera support frame 7 and the camera unit 10 supported thereby will roll relative to the cage assembly 1 so as to maintain the orientation of the camera with respect to the horizontal unchanged. In other words the horizon for the camera will remain level.

With this arrangement the camera horizon remains horizontal irrespective of the nature of the mounting of the cage assembly to an associated support (not shown).

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It will be understood that it is presupposed that whatever the form of cage mounting the longitudinal axis of the cage assembly is horizontal.

If it is desired to be able to rotate the camera support frame within the cage assembly 1 pinion can be arranged to receive rotational drive from a motor unit

(not shown) in such manner that rotation of the pinion causes the camera mounting frame to rotate as required relative to the cage assembly.

By associating the control of the motor with a gyro-system in such manner as to provide an electrical control fed back loop serving as a braking facility for the pinion enables the cage assembly to be mounted at any angle whilst enabling the operational horizon of camera unit 10 remains horizontal/level.

In practice, the provision of the motor driven/controlled pinion 9 acts as a braking facility that at least controls any tendency of the support frame 7 and the camera unit 10 mounted thereto from undergoing rocking motion.

It will be understood that arrangements (not shown) would be provided for effecting a controlled rotation of the pinion and thus the camera mounting frame with respect to the cage assembly. With this arrangement the camera mounting frame and the camera can be rotated/rolled relative to the cage even when the latter is static so that, in practice the effect of, for example, a rocking movement i.e., being at sea or banking around corners.

With this arrangement whilst the cage assembly can be set at any angular position about the longitudinal axis thereof the rotational movement between the camera frame and the cage allows the camera frame to roll relative to the cage so that the requisite horizontal horizon the camera is maintained.

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It will be appreciated that the cage itself can be mounted to any convenient form of support and can form part of a camera mounting installation. For example the cage can provide part of a so-called remote head for mounting from tripods, boom arms, cranes etc., in such manner as to be suitable for use as to provide a third axis of positional displacement of a camera or with a view to keeping a horizon level and stable. For this purpose the remote head would incorporate arrangements facilitating stabilisation.

Furthermore the cage assembly will be such as to enable be mountable to so-called camera stabilising platforms. Certain of such platforms are known as 'Steadicams' or Sled-platforms.

It will be appreciated that any monitor associated with the camera unit and equipment will need to follow the relative movement between the cage and camera support frame. This facility enables an operator of the camera to maintain an image produced by the camera and correctly framed as the cage is subjected to a rotation about its axis.

Whilst the forgoing has proposed the mounting of the cage assembly 1 from a support the frame assembly 1 can be provided with carrying handles one to either side or to the top of the cage assembly. One such cage carrying handle 11 is shown mounted from the uppermost lugs 4. In practice a handle 11 would be attached to each frame 2.

As a further alternative the apparatus as above discussed can be mounted from a telescopic post.

In a particular proposal the attachment between the camera assembly and the telescopic post can be located between the camera and its associated camera pack.

The telescopic post is of such design as to permit at least a four stage extension so that the operational level of the camera can be set to any one of a selected series of positions. The mounting of the camera on such a post has been found to result in a greater degree of stability as compared with the mounting of the camera assembly on a commonly used twin extension stage post.

It has been found that the provision of the at least four stage camera assembly mounting post makes it possible to position the camera at levels higher than those achievable with fewer stage extension posts.

MK-V ROLLOVER CAGE HAND HELD HANDLE

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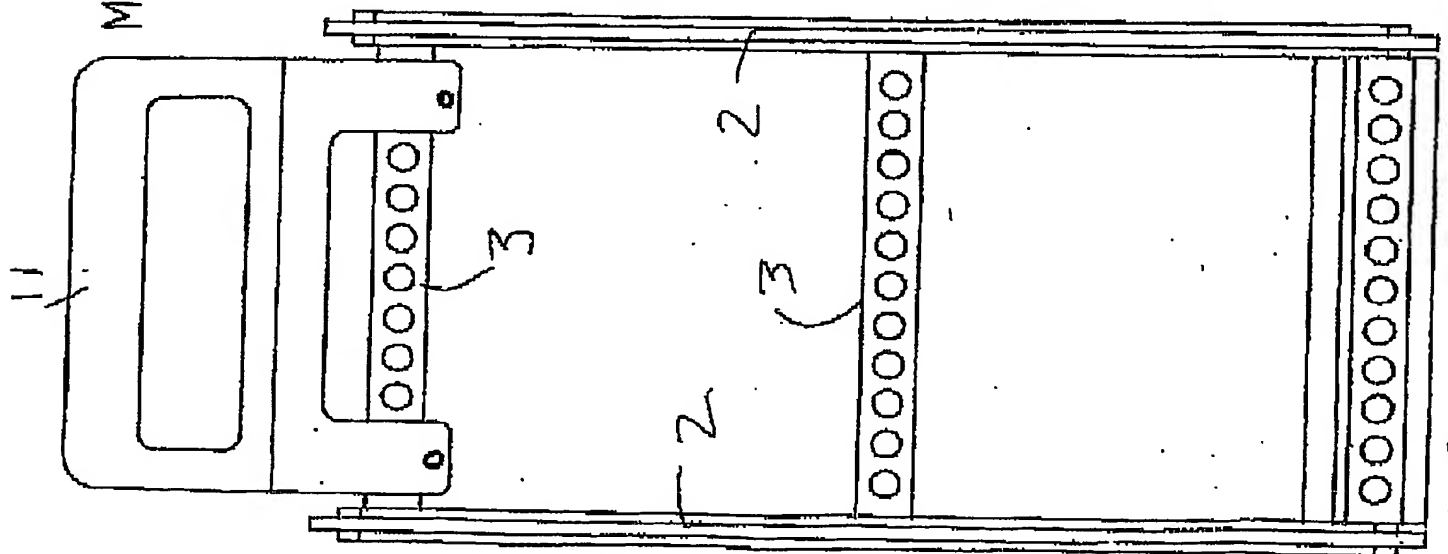


FIG 1

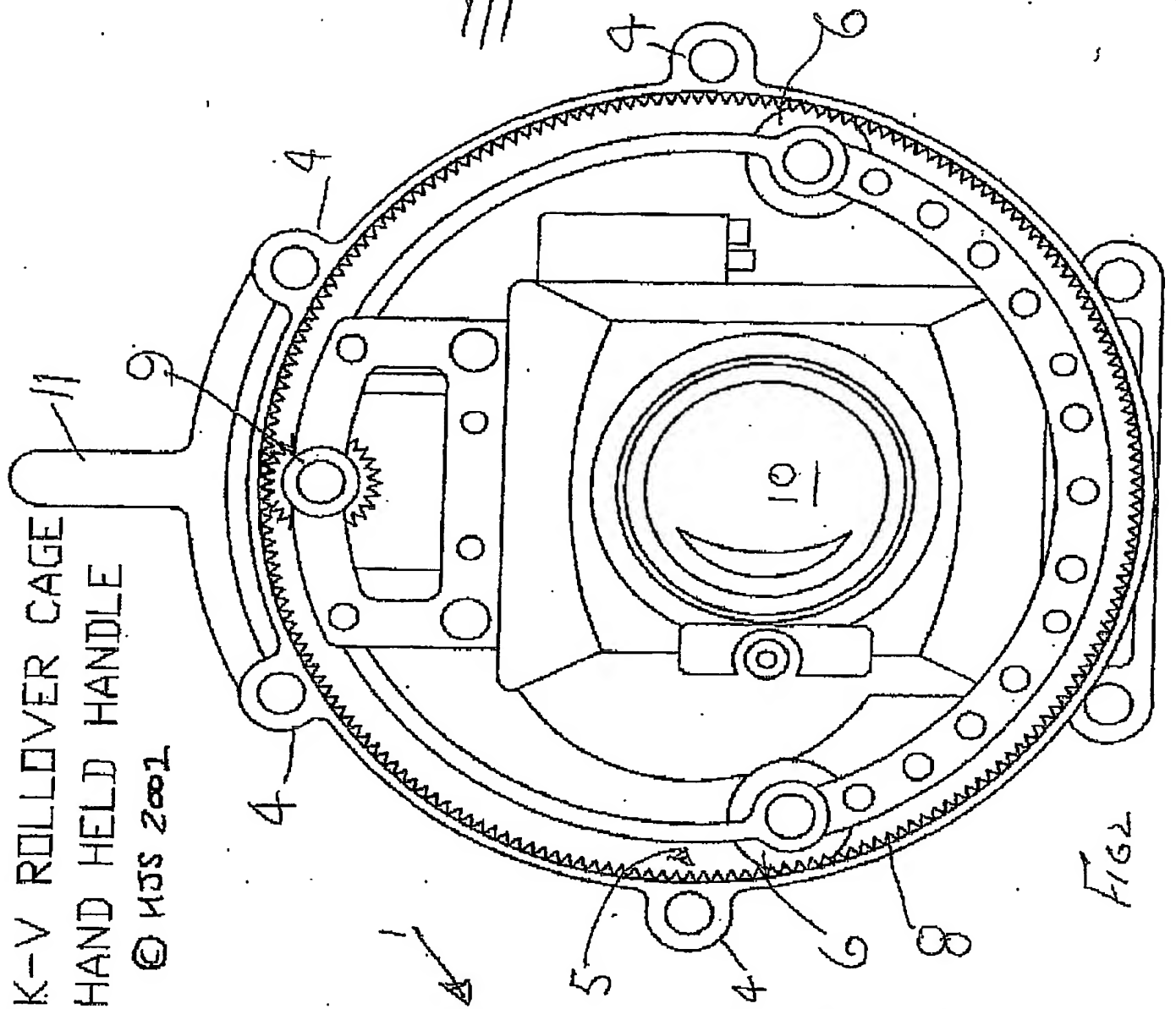


FIG 2

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